Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE CLIMATIC FACTOR: A REVIEW[1]

Huntington here presents the results of further studies of questions discussed by him in his ''Pulse of Asia'' and ''Palestine and its Transformation.'' Those two volumes set forth evidence which gave strong support to the theory that changes of climate of a pulsatory nature have occurred within historic time. ''The Climatic Factor'' not only strengthens the author's conclusions by adding lines of evidence not before available, but carries the reader forward to a discussion of the probable causes of climatic fluctuations.

The ''Introduction'' gives an excellent idea of the problem treated, the nature of the evidence investigated, and the conclusions reached. The author describes the climate of Arizona and New Mexico, discusses the topographic features characteristic of so arid a district, and adds a brief statement about its arboreal vegetation.

Turning next to the detailed evidence indicating past changes of climate, the author first describes the alluvial terraces. Two opposing theories of origin, the tectonic and the climatic, are contrasted; and, by an apparently valid line of argument, the fallacy of the tectonic theory is exposed, and the competency of the theory which attributes such terraces to climatic changes is established. Additional physical evidence of probable post-glacial climatic changes is derived from a consideration of the ancient shorelines surrounding the Otero soda lake, and of the relations of older and later gypsum deposits lying upon the desiccated lake bottom. A study of pottery fragments found in the terrace deposits, and of the relation of an ancient canal to the terraces, leads to the conclusion that at least the last of the climatic pulsations which caused important terracing occurred since the human occupation of the district.

The wide distribution and large size of ruins of ancient villages throughout southern Arizona, in localities where there is now insufficient water to support more than a few people, indicates a former moister climate. The ancient inhabitants were agricultural people, and the position of their villages as well as the presence of artificial terracing prove that dry farming was then possible where now it is impossible. Similar observations in southern New Mexico and in Sonora confirm this conclusion for those districts, while in northern New Mexico evidence of successive stages of ancient cultures suggest a pulsatory rise and fall of civilization which may have been related to pulsations of climate.

Studies of fluctuating lake levels near Mexico City, of an excavation near the city in which various relics were found, and of alluvial terraces in the valleys of adjacent mountains and in Oaxaca, afford evidence of climatic changes which is not as convincing as it might be, possibly because here the investigations were not sufficiently extended and thorough. Much more effective is the evidence furnished by the rings of growth of the giant Sequoia of the Pacific Coast. A. E. Douglass contributes an important chapter on the method of estimating past rainfall by rings of growth in trees, and shows that it is possible to recognize by their appearance the rings of specific wet or dry years in different trees distributed over a wide area. Huntington then presents a curve showing variations in rapidity of tree growth from 1300 B.C. to the present time and compares it with the curve of climatic changes previously prepared for central and western Asia from wholly different data. The substantial agreement of the two curves leads to the conclusion that in similar latitudes of western Asia and western America pulsations of climate were probably synchronous, and of the same character.

---

[1] The Climatic Factor as illustrated in Arid America. By Ellsworth Huntington. With contributions by C. Schuchert, A. E. Douglass, and C. J. Kullmer. v and 341 pp. Maps, ills., index. Carnegie Institution, Washington, D. C., 1914, 11½ x 9½.

The latter part of the work is devoted to a consideration of possible causes of climatic pulsations. Four theories are discussed: Croll's theory of the precession of the equinoxes, the theory based on supposed changes in the amount of carbon dioxide in the atmosphere, the theory based on changes in the location, elevation, and extent of the continents, and the theory of solar changes. The author concludes that while each of the four theories may be valid for certain differences in the climates of past time, none save the solar theory is competent to explain the pulsatory changes which he discusses. Evidence in support of the solar theory is then presented and analyzed. The volume closes with a chapter on the climates of past geologic time by Schuchert, in which there is shown an apparent relation between periods of mountain building and periods of cold climate. This suggests the possibility that both the internal forces of the earth and the external atmosphere may be simultaneously affected by changes in the sun.

Huntington's volume does not solve all of the problems presented by a theory of climatic pulsations. It does not pretend to do so. It does aim to show that the evidence thus far available strongly supports the belief that there have been within historic time climatic changes of a pulsatory nature. In this the author has, in the opinion of the reviewer, been successful.

D. W. Johnson.

GEOGRAPHIC NOTES ON THE WAR*

By DOUGLAS W. JOHNSON

The Carpathian Campaign. From the geographical point of view the campaign in the Carpathian mountain region is the most interesting of recent military activities. As the manuscript of these notes must be in the hands of the Editor some weeks before they appear in print, it is only possible to discuss the preliminary stages of an action which may be concluded before the reader sees these lines. However, the geographical significance of the features here discussed is none the less real because of this fact, and it will be profitable for us to consider the general situation in the Carpathians as affected by land forms.

When the Russians made their first advance on Cracow, the Carpathian mountains, with their parallel sandstone ridges guarding the northeastern approaches to the irregular central crest of the main range, afforded an effective protection against a flank attack by the Austrians. No serious attempt was made by the Russians to pour large bodies of troops through the passes to overrun the plain of Hungary. They were content to threaten the plains by raiding parties, or to hold the narrow passes against Austrian attacks. Now, however, the conditions are reversed. It is the Austro-German armies which are fighting a defensive warfare and attempting to hold the passes in the face of large Russian forces engaged in a serious campaign to break through the mountain barrier and invade the Hungarian plain.

In both cases the mountainous topography has been a powerful ally of the force on the defensive. At no time during the earlier operations were the Austrians able to get through the passes in sufficient numbers seriously to threaten the Russian flank. Small bodies of Russians, aided by the difficult

---

*All of the physiographic features mentioned in this paper are represented on the block diagram facing p. 265 with Professor Johnson's paper in the April *Bulletin.*